

# LATE BLOWING DEFECT OF CHEESE

## DETECTION, EFFECTS AND CONTROL STRATEGIES

### INTRODUCTION

Late blowing defect (LBD) is one of the major causes of spoilage in cheeses generating severe economic losses at the industry.

### OBJECTIVE

The objective is a bibliographic review to disclose basic knowledge about LBD, including the different types of blowing, its negative effects, the methods to detect it and the control strategies for prevention.

### TYPES OF CHEESE BLOWING

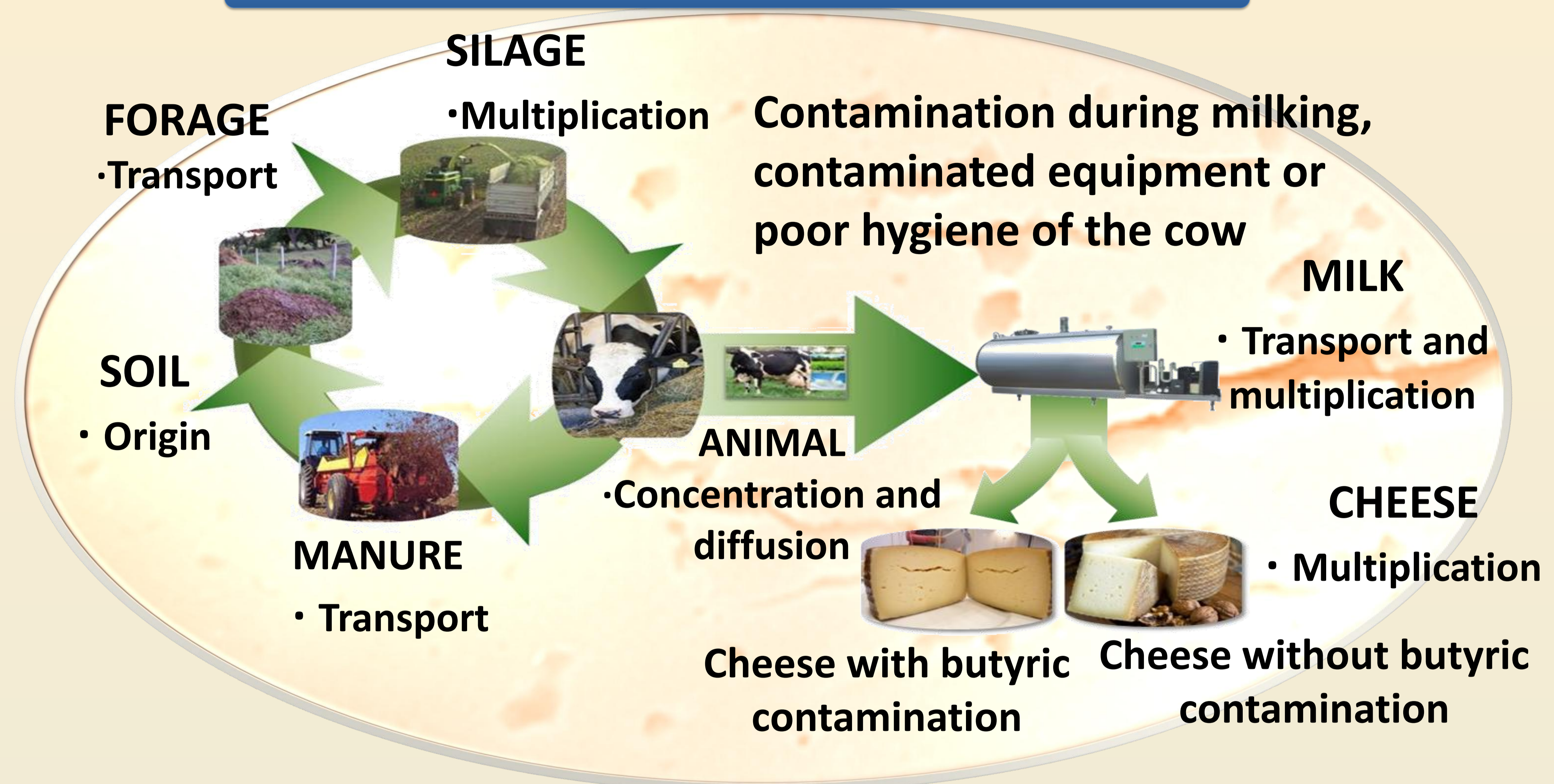
#### EARLY BLOWING

- First 24-48h of manufacture
- Soft and semi-soft cheeses
- Coliforms and yeasts

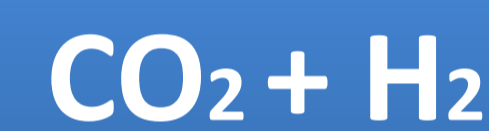
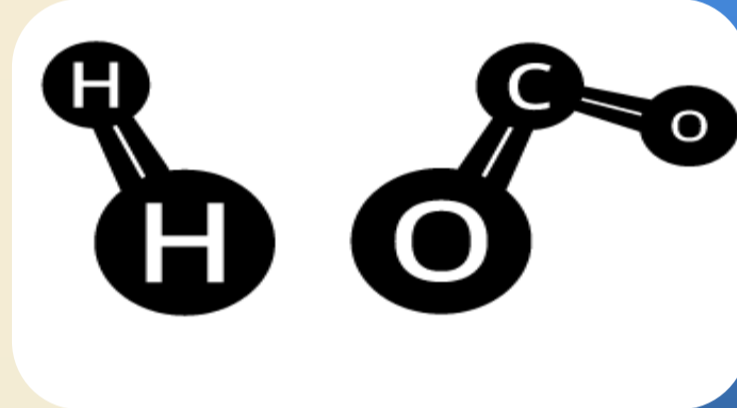
#### LATE BLOWING

- Weeks or months after manufacture
- Semi-hard and hard cheeses
- *Clostridium tyrobutyricum*

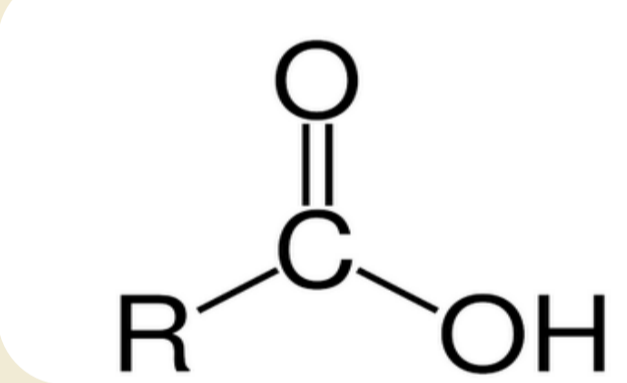
### BUTYRIC CONTAMINATION PROCESS



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F  
F  
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C  
T  
S

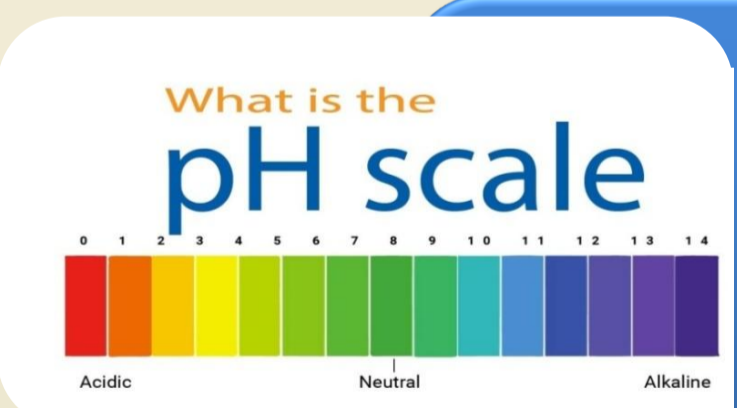


BLOWING  
IRREGULAR EYES,  
CRAKS AND SPLITS



ORGANIC ACIDS  
Butyric acid  
Acetic acid  
Propionic acid

UNPLEASANT  
AROMA AND  
RANCID FLAVOUR



pH ↑

COLOUR AND TEXTURE

### DETECTION

### CONTROL STRATEGIES

- Most probable number (MPN)
- PCR based methods

- Bactofugation and microfiltration of milk
- Addition of nitrate or lysozyme
- Use of bacteriocinogenic LAB
- Application of high pressure
- Natural creaming of milk

### CONTROL

PREVENTIVE

DAIRY FARM

Feed

Hygiene

PALLIATIVE

CHEESE INDUSTRY

Physically removing spores

Preventing spore germination

### CONCLUSION

Although LBD is an old and well known problem, it is nearly impossible to fully solve it. However, mentioned control strategies help to minimize the negative consequences.